American College of Radiology ACR Appropriateness Criteria[®]

Hydronephrosis on Prior Imaging-Unknown Cause

Variant 1: Adult. Asymptomatic unilateral hydronephrosis with unknown cause. Initial imaging.

	Appropr	iateness								F	'inal '	Tabu	latio	ns		
Procedure	Categ	gory	SOE	Adults RRI	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CTU without and with IV contrast	Usua approp		Expert Consensus	ଡେଡେଡେ 10-3 mSv	0 10-30 mSv [ped]	7	7	0	1	0	4	1	0	7	1	1
MRU without and with IV contrast	Usua approp		Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	0	1	3	8	1	2
			References		Study	v Quality										
			13 (31237781)			2										
			14 (25102294)			2			_		_		-			
MAG3 renal scan	Usua approp		Limited	ତତତ 1-10 mSv	&& & 0.3- 3 mSv [ped]	7	7	0	0	1	0	1	1	7	2	3
			References		Study	v Quality										
			12 (8917195)			4										
			11 (24591488)			4										
			10 (25444983)			2										
CT abdomen and pelvis with IV contrast	May approp (Disagre	oriate	Expert Opinion	ତତତ 1-10 mSv	ତତତତ 3- 10 mSv [ped]	5	5	1	0	5	3	3	0	3	0	0
MRU without IV contrast	May approp		Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	6	5	2	1	0	0
			References		Study	v Quality										

			15 (20729416)			4										
DTPA renal scan	May approp (Disagree	riate	Expert Opinion	େଟେେ 1-10 mSv	&&& 0.3- 3 mSv [ped]	5	5	1	0	1	1	9	0	3	0	0
			References		Study	y Quality										
			13 (31237781)			2										
			12 (8917195)			4										
			11 (24591488)			4										
			10 (25444983)			2										
CT abdomen and pelvis without IV contrast	May approp		Expert Consensus	ଝେଙ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	4	4	0	1	1	8	5	0	0	0	0
US color Doppler kidneys and bladder retroperitoneal	May approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	0	0	7	3	4	1	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually approp		Expert Consensus	ତତତତ 10-30 mSv	&&&& 10-30 mSv [ped]	3	3	7	0	7	0	1	0	0	0	0
MRI abdomen without IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	5	2	5	1	0	2	0	0	0
MRI abdomen and pelvis without IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	2	7	3	0	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	1	1	7	2	3	1	0	0	0
US abdomen	Usually approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	2	2	5	1	3	1	1	0	0
CT abdomen with IV contrast	Usually approp		Expert Consensus	େଟେହ 1-10 mSv	∞∞∞∞ 3- 10 mSv [ped]	2	2	7	3	2	0	1	1	1	0	0
CT abdomen without IV contrast	Usually approp		Expert Consensus	େଡେଡ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	2	2	6	3	2	1	1	1	1	0	0

Radiography intravenous urography	Usually not appropriate	Expert Consensus	ଡେଡେ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	6	4	2	1	1	0	1	0	0
MRI abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	5	4	3	1	0	0	2	0	0
Fluoroscopy antegrade pyelography	Usually not appropriate	Expert Consensus	ଝେଝେ 1-10 mSv		2	2	7	4	2	1	1	0	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	֎֎֎֎ 10-30 mSv	୫୫୫୫୫ 10-30 mSv [ped]	1	1	8	2	2	0	1	1	1	0	0
Fluoroscopy voiding cystourethrography	Usually not appropriate	Expert Consensus	֎֎ 0.1-1mSv	�� 0.03- 0.3 mSv [ped]	1	1	8	4	2	0	1	0	0	0	0
Radiography abdomen and pelvis	Usually not appropriate		ଝେଝେ 1-10 mSv	ତେତ 0.3- 3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0

Variant 2: Adult. Asymptomatic bilateral hydronephrosis or asymptomatic hydronephrosis in a solitary kidney with unknown cause. Initial imaging.

	Appropri	ateness	005								I	Final	Tabu	latio	ns		
Procedure	Categ	ory	SOE	Adults RR	L	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
MRU without and with IV contrast	Usual approp		Strong	O 0 mSv	/	O 0 mSv [ped]	7	7	0	0	0	2	0	2	7	3	1
			References			Study	Quality										
			13 (31237781) 2														
			14 (25102294)				2				_	_	- <u>-</u>			_	
MAG3 renal scan	Usual approp		Limited	େଡେଡ 1-1(mSv	0	ତେତ 0.3- 3 mSv [ped]	7	7	0	0	1	0	0	0	9	2	3
			References			Study	v Quality										
			12 (8917195)				4										
			12 (8917195) 4 11 (24591488) 4														

			10 (25444983)			2										
			2 (29287975)			4										
CT abdomen and pelvis with IV contrast	May approp (Disagre	oriate	Expert Opinion	ଝେଡେଡ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	5	5	0	0	6	3	2	2	2	0	0
CT abdomen and pelvis without IV contrast	May approp		Expert Consensus	େହେଇ 1-10 mSv	ହତତତ 3- 10 mSv [ped]	5	5	0	1	1	2	5	6	0	0	0
CTU without and with IV contrast	May approp (Disagre	oriate	Expert Opinion	ତତତତ 10-30 mSv	ଡଡଡଡଡ 10-30 mSv [ped]	5	5	1	1	2	2	0	1	4	4	0
MRU without IV contrast		ay be opriate Limited O 0 r References 15 (20729416)			O 0 mSv [ped]	5	5	0	1	0	3	6	5	0	0	0
		References Study Quality								-	-	-				
			15 (20729416)					-			-					
DTPA renal scan	May approp (Disagre	oriate	Expert Opinion	ତତତ 1-10 mSv	ତ୍ତଙ୍କ 0.3- 3 mSv [ped]	5	5	0	1	2	1	6	3	2	0	0
			References		Study	Quality										
			13 (31237781)			2										
			12 (8917195)			4										
			11 (24591488)			4										
			10 (25444983)			2			1							
MRI abdomen without IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	3	4	4	2	1	1	0	0	0
MRI abdomen and pelvis without IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	4	2	8	0	1	0	0	0	0
MRI abdomen and pelvis without and with IV contrast	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	1	0	7	1	3	2	1	0	0
US abdomen	Usuall approp		Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	2	3	5	3	2	0	0	0	0

Fluoroscopy antegrade pyelography	Usually not appropriate	Expert Consensus	ତତତ 1-10 mSv		3	3	4	3	4	2	1	0	1	0	0
US color Doppler kidneys and bladder retroperitoneal	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	3	3	0	0	8	2	5	0	0	0	0
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	ଝେଝେ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	2	2	6	4	2	0	2	1	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	ଝଝଝ 1-10 mSv	ହତତତ 3- 10 mSv [ped]	2	2	5	4	2	2	1	1	0	0	0
CT abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	ଡଡଡଡ 10-30 mSv	ତତତତ 10-30 mSv [ped]	2	2	7	3	2	0	1	2	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Expert Consensus	ଡଡଡଡ 10-30 mSv	୫୫୫୫୫ 10-30 mSv [ped]	2	2	5	5	5	0	0	0	0	0	0
Radiography intravenous urography	Usually not appropriate	Expert Consensus	ଡେଡେ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	7	3	1	1	2	0	1	0	0
Fluoroscopy voiding cystourethrography	Usually not appropriate	Expert Consensus	ତତ 0.1-1mSv	�� 0.03- 0.3 mSv [ped]	2	2	7	2	3	1	1	0	1	0	0
MRI abdomen without and with IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	3	6	2	1	2	0	1	0	0
Radiography abdomen and pelvis	Usually not appropriate		ଡ≎ େ 1-10 mSv	ତତତ 0.3- 3 mSv [ped]	2	n/a	0	0	0	0	0	0	0	0	0

Variant 3: Adult. Symptomatic hydronephrosis with unknown cause. Initial imaging.

David James	Appropriateness	SOF			Detter	Mallan			F	'inal '	Tabu	latio	ns		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
CTU without and with IV contrast	Usually	Limited	ତତ⊙ତ 10-30	****	7	7	0	0	0	1	4	2	4	3	1

	Appropriateness						Final Tabulations123456789								
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
	appropriate		mSv	10-30 mSv [ped]											
		References		Study	y Quality										
		28 (29399012)			3		_	-		-					
MRU without and with IV contrast	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	0	0	1	0	3	3	5	2	1
		References		Study	y Quality										
		29 (25249333)			4										
		28 (29399012)			3										
		17 (30853305)			4										
		14 (25102294)			2										
		13 (31237781)			2										
MAG3 renal scan	Usually appropriate	Limited	ତତତ 1-10 mSv	ଡଡଡ 0.3- 3 mSv [ped]	7	7	0	0	1	0	1	2	5	4	2
		References		Study	y Quality										
		12 (8917195)			4										
		11 (24591488)			4										
		10 (25444983)			2										
		2 (29287975)			4										
US color Doppler kidneys and bladder retroperitoneal	Usually appropriate	Strong	O 0 mSv	O 0 mSv [ped]	7	7	1	0	1	0	0	4	5	1	3
		References		Study	y Quality										
		41 (23503878)			3										
		40 (27154825)			3										
		39 (25219987)			3										
		38 (26177650)			3										
		37 (24578772)			3										
		36 (29427476)		(Good										

							_								
		35 (33051735)			3										
		33 (25254610)			3										
		25 (28611874)			1										
		22 (29663580)			2										
		17 (30853305)			4										
		16 (34304393)			3										
CT abdomen and pelvis without IV contrast	May be appropriate	Strong	ତତତ 1-1(mSv)	6	6	0	0	0	1	3	4	5	1	1
		References		Stud	y Quality										
		27 (27533351)			3										
		26 (31958894)			3										
		25 (28611874)			1										
		24 (31535518)			4										
		23 (26747219)			3										
		22 (29663580)			2										
		21 (24440589)			3										
		19 (27369294)			2										
		18 (34773812)			2										
		17 (30853305)			4										
		16 (34304393)			3										
CT abdomen and pelvis with IV contrast	May be appropriate	Strong	ତତତ 1-1(mSv) & & & & 3- 10 mSv [ped]	5	5	0	0	0	1	9	2	3	0	0
		References		Stud	y Quality										
		22 (29663580)			2										
		21 (24440589)			3										
		20 (29675722)			3										
		19 (27369294)			2										
		18 (34773812)			2										
		17 (30853305)			4										
		16 (34304393)			3										

MRU without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	0	5	3	5	2	0	0
		References		Study	Quality										
		31 (23532422)			3										
		30 (23290346)			2										
		29 (25249333)			4										
		17 (30853305)			4										
		15 (20729416)			4										
DTPA renal scan	May be appropriate	Strong	ଡେଡେ 1-10 mSv	֎֎֎ 0.3- 3 mSv [ped]	5	5	0	1	2	1	9	2	0	0	0
		References		Study	y Quality										
		13 (31237781)			2										
		12 (8917195)			4										
		11 (24591488)			4										
		10 (25444983)			2				_	-	-			-	
US abdomen	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	3	5	1	1	2	2	1	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	1	2	4	3	4	0	1	0	0
MRI abdomen and pelvis without and with IV contrast	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	4	4	0	1	4	3	3	3	1	0	0
CT abdomen with IV contrast	Usually not appropriate	Expert Consensus	ବ୍ୟତ୍ୟ 1-10 mSv	&&&& 3- 10 mSv [ped]	3	3	5	2	2	2	2	2	0	0	0
CT abdomen without IV contrast	Usually not appropriate	Expert Consensus	ବେବତ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	3	3	5	2	2	3	1	2	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually not appropriate	Strong	ହ ଙ୍କଙ 10-30 mSv	**** 10-30 mSv [ped]	3	3	0	2	8	1	0	3	1	0	0
		References		Study	Quality										

		23 (26747219)			3										
		 22 (29663580)			2										
		21 (24440589)			3										
		20 (29675722)			3										
		19 (27369294)			2										
		18 (34773812)			2										
		17 (30853305)			4										
		16 (34304393)			3										
MRI abdomen without IV contrast	Usuall approp	Expert Consensus	O 0 mSv	, O 0 mSv [ped]	3	3	4	3	4	1	1	2	0	0	0
CT abdomen without and with IV contrast	Usuall approp	Expert Consensus	ଡଡଡ ଡ 10- mSv	30 \$\$\$\$\$\$ mSv [ped]	2	2	7	5	3	0	0	0	0	0	0
Radiography intravenous urography	Usuall approp	Limited	ତତତ 1-1 mSv	00002	2	2	7	2	1	1	2	1	1	0	0
		References		Stuc	ly Quality										
		6 (28461996)			4										
Fluoroscopy voiding cystourethrography	Usuall approp	Expert Consensus	ବଟ 0.1-1m	1Sv 0.03- 0.3 mSv [ped]	2	2	7	2	3	1	1	0	1	0	0
MRI abdomen without and with IV contrast	Usuall approp	Expert Consensus	O 0 mSv	, O 0 mSv [ped]	2	2	6	3	6	0	0	0	0	0	0
Radiography abdomen and pelvis	Usuall approp		ତତତ 1-1 mSv	0	2	n/a	0	0	0	0	0	0	0	0	0
Fluoroscopy antegrade pyelography	Usuall approp	Expert Consensus	ତତତ 1-1 mSv	0	2	2	6	3	2	1	2	0	1	0	0

Variant 4: Adult. Asymptomatic hydronephrosis in a pregnant patient with unknown cause. Initial imaging.

	Appropriateness	207			-				F	Tinal	Tabu	latio	ıs		
Procedure	Category	SOE	Adults RRL	Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US color Doppler kidneys and bladder retroperitoneal	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	0	0	3	4	8
		References		Study	/ Quality										
		5 (33754607) 4													
		17 (30853305) 4													
		4 (23455540)		3 4											
		43 (33328069)				_				-					
US abdomen	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	1	3	7	4	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate (Disagreement)	Expert Opinion	O 0 mSv	O 0 mSv [ped]	5	5	1	0	3	4	5	0	2	0	0
MRU without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	1	0	1	10	1	2	0	0
		References		Study	/ Quality										
		15 (20729416)		-	4									-	
MRI abdomen without IV contrast	Usually not appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	2	2	6	7	1	0	0	0	1	0	0
DTPA renal scan	Usually not appropriate	Strong	≎≎≎ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	6	2	2	3	1	1	0	0	0
		References		Study	/ Quality										
		13 (31237781)			2										
		12 (8917195)			4										
		11 (24591488)			4										
		10 (25444983)			2						_			-	
MAG3 renal scan	Usually not appropriate	Limited	ତତତ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	2	2	5	3	2	3	1	1	0	0	0
		References		Study	/ Quality										

		10 (25444983)			2										
		11 (24591488)			4					-					
CT abdomen with IV contrast	Usually r appropria	Expert Consensus	ଡେଡ େ 1-10 mSv	େବେବେତ 3- 10 mSv [ped]	1	1	10	0	4	0	0	1	0	0	0
CT abdomen without IV contrast	Usually r appropria	Expert Consensus	ଷଷ 1-10 mSv	େବେବେତ 3- 10 mSv [ped]	1	1	10	1	3	0	0	1	0	0	0
CT abdomen without and with IV contrast	Usually r appropria	Expert Consensus	ତତତତ 10-30 mSv	&&&& 10-30 mSv [ped]	1	1	10	1	3	0	0	1	0	0	0
CT abdomen and pelvis with IV contrast	Usually r appropria	Expert Consensus	ଡଡ ଡ 1-10 mSv	େବେବେତ 3- 10 mSv [ped]	1	1	9	1	2	2	0	1	0	0	0
CT abdomen and pelvis without IV contrast	Usually r appropria	Expert Consensus	ଡେଡ େ 1-10 mSv	େବେବେତ 3- 10 mSv [ped]	1	1	9	0	3	2	0	1	0	0	0
CT abdomen and pelvis without and with IV contrast	Usually r appropria	Expert Consensus	ଡଡଡଡ 10-30 mSv	≎≎≎≎≎ 10-30 mSv [ped]	1	1	9	1	2	2	0	1	0	0	0
CTU without and with IV contrast	Usually r appropria	Expert Consensus	ଡଡଡଡ 10-30 mSv		1	1	9	1	2	1	1	1	0	0	0
Radiography intravenous urography	Usually r appropria	Limited	ଝେଝ 1-10 mSv		1	1	10	1	2	1	1	0	0	0	0
		References		Study	y Quality										
		6 (28461996)			4										
Fluoroscopy voiding cystourethrography	Usually r appropria	Expert Consensus	୫୫ 0.1-1mSv	&⊛ 0.03- 0.3 mSv [ped]	1	1	11	1	2	0	0	1	0	0	0
MRI abdomen without and with IV contrast	Usually r appropria	Limited	O 0 mSv	O 0 mSv [ped]	1	1	10	2	0	1	0	1	1	0	0
		References		Study	y Quality										

		42 (31429682)			4										
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	9	2	1	1	0	0	2	0	0
		References		Study	/ Quality										
		42 (31429682)			4										
MRU without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	12	3	0	0	0	0	0	0	0
		References		Study	/ Quality										
		42 (31429682)		4							-				
Radiography abdomen and pelvis	Usually not appropriate		ଝେଝ 1-10 mSv	≎≎≎ 0.3- 3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
Fluoroscopy antegrade pyelography	Usually not appropriate	Expert Consensus	ତତତ 1-10 mSv		1	1	11	1	2	0	0	1	0	0	0

Variant 5: Adult. Symptomatic hydronephrosis in a pregnant patient with unknown cause. Initial imaging.

	Appropria	ateness	005							F	Final	Tabu	latio	ns		
Procedure	Catego	ory	SOE	Adults RRI	2 Peds RRL	Rating	Median	1	2	3	4	5	6	7	8	9
US color Doppler kidneys and bladder retroperitoneal	Usual appropi		Limited	O 0 mSv	O 0 mSv [ped]	9	9	0	0	0	0	1	1	1	2	10
			References		Stud	y Quality										
			49 (32666258)			3										
			48 (27231677)			4										
	_		47 (26941870)			3										
			46 (24496359)			3										
			45 (34515254)			3										
			43 (33328069)			4										
			17 (30853305)			4										
			9 (28516385)			4										
			6 (28461996)			4										

		5 (33754607)			4										
		4 (23455540)			3										
MRU without IV contrast	Usually appropriate	Limited	O 0 mSv	O 0 mSv [ped]	7	7	0	0	0	2	2	3	6	2	0
		References		Study	Quality										
		6 (28461996)			4										
		15 (20729416)			4										
		17 (30853305)			4										
		29 (25249333)			4										
		30 (23290346)			2										
		44 (14665888)		-	4					1	1				
US abdomen	May be appropriate	Expert Consensus	O 0 mSv	O 0 mSv [ped]	6	6	0	0	0	2	2	10	1	0	0
MRI abdomen and pelvis without IV contrast	May be appropriate	Limited	O 0 mSv	O 0 mSv [ped]	5	5	0	0	1	6	3	1	4	0	0
		References		Study											
		17 (30853305)			4										
CT abdomen and pelvis without IV contrast	May be appropriate	Limited	≎≎≎ 1-10 mSv	≎≎≎≎≎ 3- 10 mSv [ped]	4	4	1	1	5	4	4	0	0	0	0
		References		Study	v Quality										
		6 (28461996)			4										
		17 (30853305)			4										
DTPA renal scan	Usually not appropriate	Strong	ତତତ 1-10 mSv	ତ୍ତଙ୍କ 0.3- 3 mSv [ped]	3	3	4	2	2	4	1	1	1	0	0
		References		Study	v Quality										
		13 (31237781)		2											
		12 (8917195)			4										
		11 (24591488)			4										
		10 (25444983)			2										

CT abdomen and pelvis without and with IV contrast	Usuall approp	Limited	ଚଚଚ ଚଚ 10-3(mSv	0 20000 0 10-30 mSv [ped]	2	2	7	3	3	0	0	1	1	0	0
		References		Study	y Quality										
		6 (28461996)			4										
		17 (30853305)			4								_		
CTU without and with IV contrast	Usuall approp	Limited	ଡଡ ଡଡ 10-3(mSv	0 00000000000000000000000000000000000	2	2	5	4	3	1	0	1	1	0	0
		References		Study	y Quality										
		6 (28461996)			4										
		17 (30853305)			4										
MRI abdomen without IV contrast	Usuall approp	Limited	O 0 mSv	O 0 mSv [ped]	2	2	4	6	4	0	0	0	1	0	0
		References		Study	y Quality				•	•	•				
		17 (30853305)			4										
MRU without and with IV contrast	Usuall approp	Limited	O 0 mSv	O 0 mSv [ped]	2	2	7	4	1	1	0	0	2	0	0
		References		Study	y Quality										
		42 (31429682)			4						-			_	
MAG3 renal scan	Usuall approp	Limited	֎֎֎ 1-10 mSv	&&& 0.3- 3 mSv [ped]	2	2	5	3	6	1	0	0	0	0	0
		References		Study	y Quality										
		10 (25444983)			2										
		11 (24591488)			4										
CT abdomen with IV contrast	Usuall approp	Expert Consensus	֎֎֎ 1-10 mSv	ଡେଡେଡେ 3- 10 mSv [ped]	1	1	9	2	3	0	0	1	0	0	0
CT abdomen without IV contrast	Usuall approp	Expert Consensus	֎֎֎ 1-10 mSv	≎≎≎≎ 3- 10 mSv [ped]	1	1	9	2	3	0	0	1	0	0	0

CT abdomen without and with IV	Usually not	Europet	ଡଡଡଡ 10-30	***** 10-30											
contrast	appropriate	Expert Consensus	mSv	[ped]	1	1	9	2	3	0	0	1	0	0	0
CT abdomen and pelvis with IV contrast	Usually not appropriate	Limited	֎֎֎ 1-10 mSv	ତେତେତେ 3- 10 mSv [ped]	1	1	8	1	4	1	0	1	0	0	0
		References Study Quality													
		6 (28461996)			4										
		17 (30853305)			4										
Radiography intravenous urography	Usually not appropriate	Limited	ଷଷଷ 1-10 mSv	≎≎≎≎ 0.3- 3 mSv [ped]	1	1	11	1	1	1	1	0	0	0	0
		References		Study	y Quality										
		6 (28461996)			4										
Fluoroscopy voiding cystourethrography	Usually not appropriate	Expert Consensus	ତତ 0.1-1mSv	�� 0.03- 0.3 mSv [ped]	1	1	11	1	2	0	0	1	0	0	0
MRI abdomen without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	11	3	1	0	0	0	0	0	0
		References		Study	y Quality										
		42 (31429682)			4										
MRI abdomen and pelvis without and with IV contrast	Usually not appropriate	Limited	O 0 mSv	O 0 mSv [ped]	1	1	10	3	2	0	0	0	0	0	0
		References		Study	y Quality										
		42 (31429682)			4										
Radiography abdomen and pelvis	Usually not appropriate		ତତତ 1-10 mSv	≎≎≎≎ 0.3- 3 mSv [ped]	1	n/a	0	0	0	0	0	0	0	0	0
Fluoroscopy antegrade pyelography	Usually not appropriate	Expert Consensus	ଷଷଷ 1-10 mSv		1	1	10	1	3	0	0	1	0	0	0

Appendix Key

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

Appropriateness Category: The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

SOE: Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- Study Quality: The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

RRL: Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

Rating: The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Median: The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

Final tabulations: A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at www.acr.org/ac.